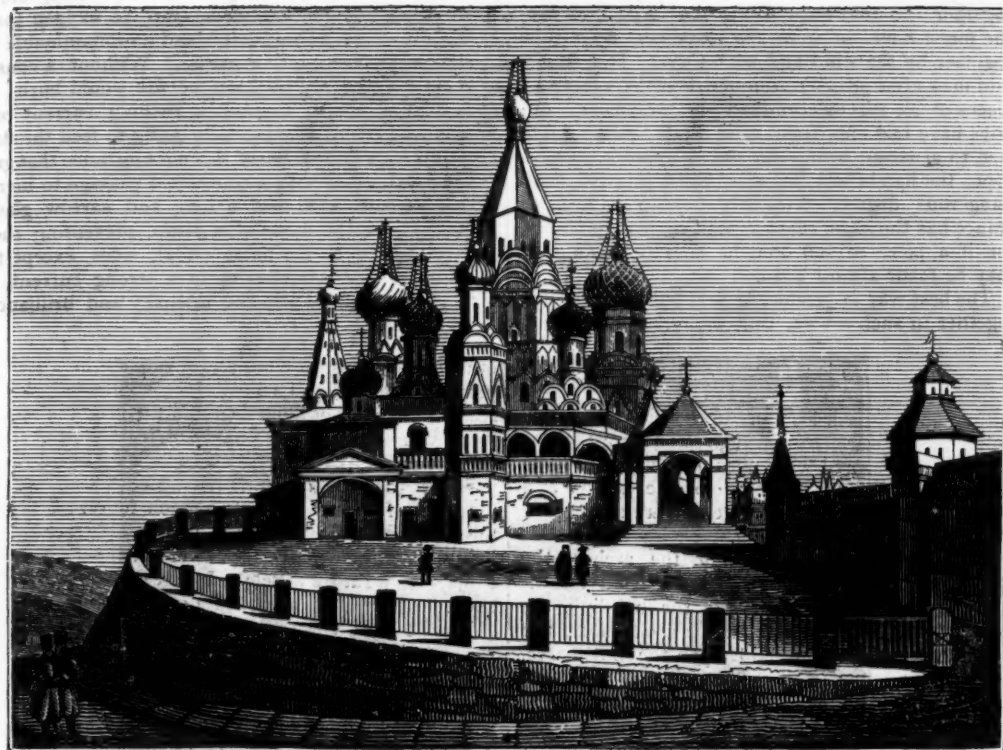




UNDER THE DIRECTION OF THE COMMITTEE OF GENERAL LITERATURE AND EDUCATION  
 APPOINTED BY THE SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE.

RUSSIA. III.



THE CHURCH OF BASIL THE BLESSED, AT MOSCOW.

THE CHURCH OF BASIL THE BLESSED, IN  
 MOSCOW.

FEW things strike the English traveller through Northern and Central Russia more strongly, than the total absence of picturesque ruins: he finds no trace of anything resembling those fine old remnants of feudal splendour, which are the boast of almost every county in England. Those ruins which do exist, are comparatively of modern date, and, appearing rather to have been destroyed by violence, than crumbled by time, are totally devoid of interest either to the antiquarian or the artist. Their sharply-defined outline is unbroken by the growth of the graceful ivy that flutters round the frowning battlements of our ancient baronial castles, or checking the devastating hand of time, and filling up the "rents of ruin," twines round these haughty structures.

Nor does any object strike his eye, that recalls to mind those venerable remains of monastic power which are interspersed among the rich valleys of his own country, where once cloistered learning, nursing the lamp of science and of truth in his secluded cell, hid its light from the vulgar gaze, or flashed forth only to dazzle and bewilder, but where

Amid their choirs, unroofed by selfish rage,  
 The warbling wren *now* finds a leafy cage;  
 The gadding bramble hangs her purple fruit,  
 And the green lizard and the gilded newt,  
 Lead unmolested lives, and die of age\*.

The ecclesiastical edifices of Russia which still exist, though wanting the richly-finished tracery, and the imposing grandeur of our matchless cathedrals, are yet not destitute of that sort of interest which novelty can inspire. Of these, we shall present our readers with a succession of engravings, illustrating the peculiarities of the architecture of each age.

One of the oldest constructions of this kind in the ancient city of Moscow is the church of "Vassili Blajennoi," or "Basil the Blessed," of which the annexed engraving is a tolerably faithful representation; we give it the popular name, although it is, in fact, a cathedral church dedicated to the "*Protection of the Holy Virgin*." It was built in 1554 under the reign of Ivan the Terrible, whose ferocious character giving rise to the cognomen he bears in history, would almost appear to sanction the currently-received tradition, that he ordered the eyes of the architect to be put out, saying, "I wish this edifice to remain the master-piece of his art."

\* Wordsworth

It is generally considered to have been the work of an Italian architect, long in the service of the Tzar, whose extraordinary talents and profound learning procured for him, from his adopted country, the name of *Aristotle*, by which he is still known in history.

Although graphically correct, the representation we have given is by no means calculated to convey an adequate conception of the grotesque appearance of this most singular structure, in which every possible style of architecture has its representative,—the pagoda of China its cupola, the Kiosk its minarets, the Norman Gothic its semi-circular arch and its massy pillar, and the Saracenic Gothic its clustered columns, to all which Russia has added pictorial embellishments indisputably its own. The distinguishing characteristics of the barbarous age in which it was erected still exist intact, or have been renovated in the same fantastic taste that presided over the original construction; indeed, it would have been to be regretted, if its peculiar character had been lost by the substitution of more modern improvements.

The bulbous cupolas, one differing from another in size and form, are painted of the most gaudy colours, green, blue, purple, and orange, in alternate stripes or compartments, and are surmounted by highly-wrought gilded crosses of open-work; the centre cupola alone is richly gilt. The body of the building is plastered, and coloured green, over which are irregularly traced, lines of dirty yellow, intended to give the appearance of rough stone-work. The towers are red, scored with lines of white; the roof of the main building, the spire of the belfry, and the pyramidal tops of the porches, are all covered with dark-green varnished tiles.

The imposts and mouldings of the arches, the pillars, the pilasters, and, in short, to avoid technicalities, all the prominent lines of the building, are white. In compartments upon the architraves, the pedestals of the columns, and upon the buttresses, are rudely painted groups of flowers of every agreeable form and colour, such as Linnaeus himself would have despaired to class.

The interior is much in the same eccentric style; besides the principal church, the building contains nineteen distinct chapels, dedicated to different saints. During the occupation of Moscow by the French, they were appropriated as stables.

READING furnishes the mind only with materials of knowledge; it is thinking makes what we read ours. We are of the ruminating kind, and it is not enough to cram ourselves with a great load of collections; unless we chew them over again, they will not give us strength and nourishment.  
—JOHN LOCKE.

THERE are times when neither the delicacies which pamper appetite, nor the distinctions which flatter pride, can impart any gratification. The sensual turn in disgust from the feast, and the ambitious from the incense and applause with which they have been regarded. "In this hard season," said Mr. Burke, "I would not give a peek of refuse wheat for all that is called fame and honour in the world. This is the appetite of but a few. It is a luxury; it is a privilege; it is an indulgence for those who are at their ease." The truly benevolent has an enjoyment which retains its relish to the last hour of life. He who feeds the poor, relieves and defends the oppressed, instructs the ignorant, and consoles the wretched, cannot lose his reward.

THERE is hardly any bodily blemish which a winning behaviour will not conceal or make tolerable.

VIRTUE is the first quality to be considered, in the choice of a friend.—DR. JOHNSON.

## THE ECONOMY AND HARMONY OF NATURE.

### III.

#### THE ANIMAL KINGDOM (*concluded.*)

WHILE insects are the most wonderful, and birds the most beautiful, parts of animated nature, quadrupeds may be said to be (with the exception of man) the most noble part of creation.

I intended at this stage of my remarks, to examine the composition of animals in general, which, in common with vegetables, are formed of carbon, hydrogen, oxygen, and nitrogen; I intended also to notice the action of animals, which is at once palpable to our senses, and forms so immediate a part of our whole perception of it, that it is from this motion that we derive our ideas of power in them. I likewise intended to make a few remarks on the variety of quadrupeds which inhabit the earth, and on the economy of quadrupeds in general; on the wonderful structure of the camel, which enables it to endure thirst for a length of time, in those parched and sandy deserts where it is destined to travel; on the construction of the elephant's trunk, by means of which the animal feeds, in consequence of the neck being short and stiff; on the beautiful mechanism of the horse, and its utility; on the sagacity of the dog, and its fidelity. I intended to notice these, and many others, as well as the instinct of animals in avoiding poisonous herbs, the covering of animals, and the reason, or mind, of animals; and further, I intended to show that all animals could not, if possessing their present economy and habits, have existed in the same part of the globe; but, having discussed other branches of my subject at so much length, I must, for the present, pass over the quadrupeds, and probably make the zoological part of creation form the subject of a future article. I proceed, therefore, to say a few words on the *balance of life and food*.

Nature has adjusted with much accuracy the various degrees of fecundity and sterility in the different classes of animals, and varied them both in proportion to the means of subsistence.

Animals live partly upon the vegetable kingdom,—and this kingdom produces so abundantly, that we are enabled to lay up a Winter's store for those that are domesticated; while others provide a Winter's store for themselves. Some animals have the instinct to migrate, when vegetation passes into its annual repose; while many others are laid asleep, or enter the state of hybernation for the season;—all thus proving the provident care of Nature for their preservation.

The perpetual system of migration shows that, however varied the different classes may be, the season, the climate, and situation, is variously adapted to all. But the majority of animals feed upon other inferior animals, as well as upon vegetables. Some birds prey upon snails, which would destroy our orchards and pleasure-grounds; and others devour those insects which would destroy our fruit; while the swallows consume millions of them during the day, the bats and goatsuckers diminish their numbers at the twilight and dawn.

When we consider that the house-fly is the prey of the spider, while the latter is itself devoured by various kinds of birds, which, in their turn, become the prey of the hawk; and when we also consider that animalculæ, which prey on smaller animals, become themselves the prey of sprats, and sprats in their turn the food of herrings, while the latter furnish food for the cod, which, in its turn, becomes the prey of warm-blooded animals,—we are led to conclude that

consumers cannot increase much beyond the supply of food, neither can the animals required for food increase much beyond the demand for them. It is this law of Nature, that animals are to eat and be eaten, which balances life and food throughout the world; but it is also a law of Nature, that very few animals or vegetables prey upon or destroy their own species.

The minutest objects in nature are linked by an interminable chain to other objects, gradually increasing to the greatest; and the laws of nature are so wise and well regulated, that, in general, those animals of prey which are not destroyed to support the life of others are the least prolific; while those insects that are the most minute, have the greatest fecundity, which proportionably decreases in the different species as they ascend in the scale of creation. Man, being at the head of all animals, is, in consequence, the most sterile of all organized beings. But let us consider the last head,—namely, the *animal structure of Man*.

Man is indeed "most fearfully and wonderfully made." That all-wise Providence which has placed him at the head of the whole animal creation, has been pleased to distinguish him from the inferior classes of animals in many particulars; the most evident of which is, his erect posture in walking,—a posture which the most perfect animal, even those of the monkey tribe, cannot sustain for any length of time.

The component parts of an animal body are, sixteen solids and sixteen fluids. Some of those parts are many in number; for example,—there are two hundred and fifty-four bones, and two hundred and eighty-nine muscles in one animal body. The bones are arranged for strength and action; and on the various joints of these much of their effect depends. There are two principal sorts of joints, namely, the ball-and-socket-joint, which is used at the hip and shoulder; and the hinge-joint, such as that employed at the knee and elbow: these joints are used respectively, according to the extent of motion required. The spine, or back-bone, which is composed of twenty-four small bones, is a wonderful piece of mechanism; it is at once strong and flexible; and its use is (in addition to its connecting the ribs and supporting the muscles of the trunk), to prolong from the brain the spinal marrow, which is essential to animal life. It is the pillar which supports the head,—that noble part of the body, which contains the seat of sensation, the light of understanding, the faculty of sight, &c. The skull,—that beautiful structure, is the seat of the brain, where the mind takes up her residence, and where she holds communion with all material things around her; it is composed of eight bones, which not only lap over each other for facility, but it admits of the skull being of an arched form, which is the strongest of all possible forms, and therefore a tower of defence to that delicate vital organ, the brain.

All animal motion is effected by muscles, which are either voluntary, such as those of the arms and legs, or involuntary, as in the heart. The muscles and tendons have not only the power of generating and regulating motion, but they are differently constructed, according to the movement required. They also support the bones, especially the head, by the different directions in which they are placed; and, indeed, the motion of every limb is chiefly regulated by their agency. Now, whether we consider the limbs of the body as levers,—the heart, and all the blood-vessels through which the vital fluid circulates, as a hydraulic machine,—the lungs as a perfect pneumatic apparatus,—and the membranes and transparent humours of the eye as a

beautiful optical instrument,—we find that all is constructed on the most perfect principles.

Let us add to the structure of man, the organs of the five senses; the principal animal functions; the voluntary or relative functions; the organic or nutritive functions; and the reproductive functions. In addition to these, let us think of all the animal propensities by which man is placed on a level with inferior animals; the moral sentiments or faculties, which are generally peculiar to man alone; the intellectual faculties, which are peculiar to man only; and, above all, the Soul, which affords such sublime ideas, and at once proves man's superiority, and its own immortality! When we consider these, and many other things peculiar to man, we are lost in wonder, and ready to exclaim with Dr. Young,

Oh! what a miracle to man is man!"

But I shall not extend my remarks further than to say, that the practical application of the foregoing observations is briefly this:—That there is no situation in which a man can be placed, but he may study some part of nature,—and we ought to study it, for the "hand which made it is Divine!"

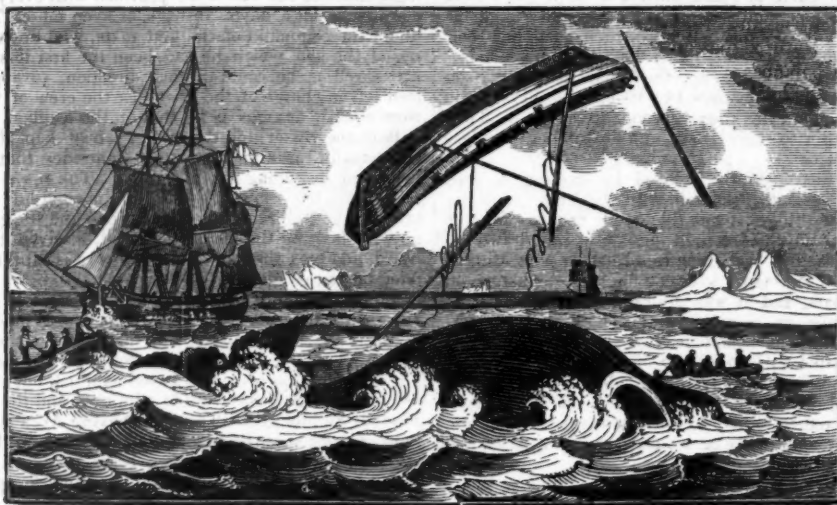
The more we can understand of the works of nature, the more we must be convinced of the power and omnipotence, the goodness and justice, of that Supreme Being who first created, and now sustains it.

Why were the organs of observation given us? To a certainty that we might use them, and learn to read the great volume of Nature,—there to look and to admire,—to learn and to love. Our senses are precious gifts, if we could but appreciate their true value. Why was every tint and tone of colour mingled in the light of day, by which we can tell of space as well as substance? Why was the rainbow, the arch of Hope, with its sevenfold glory, made to span the heavens? Why does the rose, the mignonette, and the lavender, give forth its odour? Why does the nightingale sing so sweetly. Wherefore do the winds murmur through the forest? and why do the caverns and the dens of the earth give out their tones? Why? But to tempt us forth, in order that we may learn and admire; and that we may thence "look from nature up to nature's God!" That we may learn humility, when we consider the majesty and grandeur of this world, which is linked together by a chain, the end of which we cannot trace! That we may also admire the heavens and the earth,—not as the effects of chance, but as parts of one stupendous whole, formed by the Almighty, who is the life, spring, and soul of their action! And, lastly, that we may never consider any operation of nature without a final end; for, whether it is the death of a fly, or destruction by an earthquake,—the fall of a sparrow, or the revolution of worlds,—it is for some wise purpose, beyond the comprehension of human beings. R.

"FORTITUDE," said Locke, "is the guard and support of all the other virtues." The assertion, if limited and properly applied, is just. But the question may be asked, can there be true constancy without devotion? If the suffrage of the best judges, and the fund of experience, be regarded, the answer must be in the negative. "A prayerless heart," says Dr. Watts, "may be considered as a defenceless citadel, lying open and exposed to the incursion of every foe; whereas, the heart of one truly devout, is like a castle in which the Lord dwells, and which is garrisoned with the Divine Presence." The righteous is bold as a lion. He dares do anything but offend God, and to dare to do that is the greatest folly, and baseness, and weakness in the world. From this fear have sprung the most generous resolutions and heroic achievements in times of persecution and suffering.—R.



## THE USEFUL ARTS. No. XXIX.



WHALE TOSSING A BOAT

JOURNAL OF THE VOYAGE OF A WHALE SHIP,  
(concluded.)

On the 23rd, the master, who was in the crow's nest, gave a signal to those on deck, that a *fish*\* was in sight. Two "crews" instantly leaped into their boats, which in less than a minute were lowered into the water, and were off in pursuit; and in consequence of several more whales being discovered, the first were speedily followed by two other boats to support and assist them. The boats first despatched rowed for a large field, near to which the animal had been seen, every man keeping an anxious look out for its re-appearance, which, fortunately for the success of the chase, took place about a quarter of a mile ahead. Great silence being preserved, the weather being so tranquil at the time that there was danger lest the noise of the oars, however skilfully and smoothly pulled, would alarm the whale, the steerer signalled to the crew to rest on them while he sculled the boat up to the animal by means of the oar always used, on these occasions, to steer with, instead of a rudder. But the distance had been under-estimated, and before the boat was near enough to justify the harpooner in casting his weapon, the short period of time which the whale remains at the surface elapsed, and the animal again disappeared; but from the direction in which it was lying, and from the eddy raised as it glided beneath, the crew were enabled to follow without losing much way. They rowed, however, full two miles, before the whale rose to the surface; and when it did so, it was found to be nearly at equal distances between three of the boats, two of which had now joined the first in the pursuit of this, the largest of those whales which had been seen from the nest. All, eager in the chase, approached with like caution; and when one of them succeeded in running close upon the creature, the two others were not thirty yards from it.

The harpooner threw his weapon with such strength, that it buried itself nearly to the stock in the blubber, and his crew, prepared for the event, backed water with their oars so simultaneously, as to put themselves out of danger; but one of the others was less fortunate. In the convulsive agony of the wound, the whale, which was a full-grown one, turning half round in a second before it dived, with a blow of its tail tossed the boat which was nearest, and the crew with their oars and tackle were set floating. The third boat instantly proceeded to their assistance, and thus the first, or *fast* boat as it is termed, was left without that support so necessary on the occasion. The steersman hoisted the signal-flag, and the rowers raised one oar after another to indicate their want of more line: the whale had instantly dived, and the harpooner, though he had cast a coil or two of the line round the *bollard*†, to retard by its

\* We need hardly remind our readers that though the terms *fish*, *fishery*, &c., are technically applied to the Whale, they are as inapplicable as when speaking of the Seal or the Walrus; the Whale being no more a fish than the latter.

† A short stout post, set up near the stem of the boat for this purpose. Such is the friction of the line while running round this post,

friction the motion of the animal, was apprehensive that all the line in the boat would be run out before a new line could be brought up; and unless he cast it off to the great risk of losing the whale, he would also incur the danger of being dragged beneath the ice-field, towards which the animal was speeding with a velocity that, allowing the line to run out, dragged the boat through the water which it ploughed into a furrow, rising on the gunwales on each side nearly high enough to fill it.

The moment the signal of a *fast* boat was seen from the deck of the Endeavour, the watch raised the cry of "a fall, a fall," and the crews of the remaining boats, who were taking their rest, rushed on deck with their clothes in their hands, and scrambling in, were lowered down, thus unprepared to encounter the severity of a frost which sank the thermometer to seven degrees. The rowers were content to keep up their animal heat by their vigorous exertions to get up with the fast boat, exertions stimulated by the increasing urgency of the signals from it for help; but as there was three miles to row; and a good deal of bay-ice which had formed in the night retarded their progress, they were unsuccessful. The harpooner in the first boat seeing that his comrades could not come up in time, and finding himself within a few yards of the field which he had allowed the boat to approach thus closely in his anxiety not to lose the fish, was compelled to yield to circumstances; and having from the same motive cast additional coils of line round the bollard, which precluded the possibility of getting them off again in time, he seized the axe, and cut the rope on the gunwale just in time, for even then the impetus carried the boat against the ice, with a shock that threw every one from their seats, and stove in the bows on the starboard side.

The crew scrambled out on the ice, and having secured their lances and other tools, succeeded in mooring the boat to the edge of the field, with her head raised high enough to prevent her from sinking, and then waited till other boats would come to their relief. With that perfect indifference to danger which characterizes persons accustomed to it, they employed themselves in killing with their lances a few seals which were reposing on the surface, and whose retreat to the water they intercepted.

The boats which had hastened to their help, as soon as they saw what had happened, namely, that the whale had for the time got off, and that the boat was damaged, though the men were safe, thought it more advisable to leave them in their present situation for a short time, to proceed to aid in the capture of another whale which had been struck by one of their companions in the remaining one of the two that first left the vessel. From the length of time that this boat had been engaged, and from the signals she had repeated for more line, it so happened that all four of the boats which were not disabled, had hastened to the

that it often envelops the harpooner in smoke, and the wood would burst into flame if water were not being constantly thrown on it and the rope.

scene. Three had succeeded in harpooning the whale before the last came up; and such had been the efforts of the fish to escape, and so long had it resisted the effects of the wounds inflicted on it, that all three boats had their lines nearly run out, and one had a double set expended.

When the new aid came up, the Whale had just risen for the last time, and exhausted by its efforts\* allowed the boats to draw upon their lines and come up close to it. They then attacked it with their lances, and despatched it in less than ten minutes.

The prize was instantly secured by passing a rope through two holes cut in the tail, with the knife made for that purpose, and the rope was then made fast to the bow of a boat. The lines were then cut loose and drawn in, with the exception of one which could not be seen; this it would have been necessary to sweep for, but as that would occupy two boats, and it was desirable that they should proceed to assist in completing the capture of the first Whale, the line was abandoned for the time. Having, therefore, assisted in lashing the fins together across the belly of the fish, which always floats, when dead, with that part uppermost, the three boats left one to guard the prize, till they could return to help to tow it towards the ship, and hastened to the field of ice on which their companions had saved themselves.

These persons no sooner saw that they were left to themselves, than they set about tracing, if possible, the course which their Whale had taken. For this purpose they traversed the field in various directions to search for holes, to which they knew the Whale must come to breathe, if he did not emerge again from under the ice into the open water. But the ice was too thick and too uniform to admit of the animal breaking it by elevating its head for the purpose of obtaining air; and no fractures or apertures had yet been produced by other causes; they consequently knew that it must ere this have returned to the open water. When the party re-assembled for the purpose of proceeding back to the spot they had quitted, they became aware that, during their active exertions, a change of wind had taken place, accompanied with a thick haze, which not only prevented their discerning such marks as might enable them to proceed in the right direction, but must inevitably drive the ship far from the ice-field, and probably prevent any boats from being able to come to relieve them.

Unprovided with any compass to guide them, and, indeed, not being very certain of their original bearing, their only resource was to remain together till the weather should clear, or till their vessel could regain her station, and send boats to the field to take them off. Their prospects were, at best, but miserable; they might have to remain without food, and unsheltered from the piercing wind, which increased in violence, for a day or two, and possibly might ultimately perish, if the field should drive too far before their situation could be ascertained. The increasing swell of the ocean, which they knew must be occasioned by the gale, would probably break up the ice on which they were stationed, in which case they might either be crushed by the concussion of the masses as they were forced over each other, or precipitated into the fissures.

Every one saw and felt these dangers, but was too much accustomed to peril to think of talking about them. They simply contented themselves with keeping in constant motion, to prevent the fatal effects of the intense cold, each therefore ran in turns to as great a distance as prudence would allow, and then returned, hoping, by doing so in various directions, they might catch some sound, or perceive some mark, that might accelerate their deliverance.

As soon as the gale arose, the boats which had left the captured fish to go to the ice-field, in the hope of securing the one first struck, and of bringing off their companions, perceiving that it would probably increase, and that at any event, at their distance from the ice, they could not hope to reach it with a strong wind against them, pulled for the ship which was just in sight on the horizon, and which they also knew must be carried far from her present position in a few hours; and in order to regain their prize, and to effect their principal object, it was absolutely necessary they should procure a compass to enable them to steer in the thick weather which had come on.

\* A Whale, when struck, will dive sometimes to a depth of 800 fathoms; and as the surface of a large animal may be estimated at 1500 square feet, at this great depth it will have to sustain a pressure equal to 211,000 tons. The transition from that which it is exposed to at the surface, and which may be taken at about 1300 tons, to so enormous an increase, must be productive of the utmost exhaustion.

The master and second mate, with a picked crew, accordingly manned the best boat, provided with every necessary equipment for a day's absence, or even more. The vessel, under the command of the first mate, who knew the bearing of the fish, which he had been the first to strike, bore up as well as he could in that direction, to approach the boat left in charge of the prize, for the crew of which they were equally anxious as for that on the ice-field.

Both the vessel and the master's boat kept firing guns occasionally, as signals to their comrades that they were near and hastening to their help. The vessel soon succeeded in her object by skilful navigation; the mate brought her within sight of the prize and its guard, and, notwithstanding the increasing swell, received the men on board, and took the fish in tow, which was all that could be done till the gale abated.

This fortunately happened in the course of six hours more, and the atmosphere cleared. The Whale was then towed to the larboard-side, and made fast to the ship by a combination of tackle which it would be vain to describe, but by which the body was raised as much out of the water as its enormous weight would admit of, and the process of *flensing* commenced. The men having fixed *spurs* on the soles of their shoes to enable them to stand on the slippery surface of the Whale, and two boats, managed by one or two boys in each, having taken the knives, spades, &c., necessary for the operation, the harpooners, under the direction of the *specksioneer* cut away the blubber in large oblong pieces of from half a ton to a ton in weight; these were hoisted on deck by means of *speck-tackles*. The boat-steerers cut each mass into pieces of about a cubic foot, which were passed down into the hold, and packed away for the present.

When all the fat was removed from the belly, and the right fin cut off, the carcass was turned over by means of a powerful tackle attached to the mast-head, and worked by the capstan, and the operation renewed on the blubber of the upper part and the other fin; and subsequently, the lips, with the whalebone, were successively detached by means of *bone-spades, spikes, and knives*. These masses of whalebone, when got on the deck, were next split by *bone-wedges* into *junks*, containing from five to ten blades, or laminæ, each, and were stowed away. Having removed all the rest, the long strip of blubber encircling the neck, and which was left on during the flensing to admit of the body being turned over, but which was detached from the flesh gradually, and therefore formed a long slip supporting the carcass, was finally cut loose, and the other tackles being cast off, the mutilated remains were left to sink by their weight, until the swelling of the body, attendant on putrefaction, should again bring it to the surface, where, for many days, it affords food to numbers of birds, sharks, and bears, if they can get at it.

This operation, which had taken nearly five hours, owing to the great size of the fish, led to the momentary expectation of seeing the master returning with the men from the ice, and their damaged boat; but as nothing of the kind was in sight, the mate bore up to the north-east again, in hopes of meeting more fish, and of sooner reaching the commander. The former part of their expectations were speedily realized, and every boat that remained was in a few hours despatched in succession after the numerous Whales that appeared in the offing. Three more were struck, and two of these flensed before the return of the master. This delay had been occasioned by the necessity for remaining on the field, when they reached it, in order to repair the damaged boat sufficiently to bear the sea and receive its crew. Fortunately, the gale having been from the north, it had been sheltered by the ice, and was not much further injured. The men were well, and found at about three hundred yards from the edge, the ice having broken into several portions, to the largest of which they had retreated. The whole party returned to their vessel, after assisting in the capture of two Whales, which they met their companions from the ship in chase of.

† "During the flensing of the Whales, there were generally a considerable number of Sharks in the vicinity of the vessel. One, more voracious than the rest, approached close to the side of the Whale's carcass, and seized a large piece of blubber which was ready to be hoisted on board. Before he could make his escape, he was struck by a harpoon, and attacked by spears,—a tackle was immediately fastened to his jaws, and being hoisted on deck, his belly was ripped open, and the blubber recovered. The carpenter, too, stripped a considerable quantity of skin from his tail. Notwithstanding this rude treatment, he was no sooner let down than he swam away with great agility," (Laing's *Voyage*, p. 104).

The abundance of fish now on hand, rendered the process of *making off* immediately necessary. This consists in cutting up the blubber, temporarily stowed away, in freeing it from all flesh and skin which would not yield oil, and which would injure the rest if left on, and then in finally packing it in the casks brought out for the purpose.

The scene of bustle, activity, and hilarity, presented by the Endeavour, for several weeks, was indescribable. The sight of the loathsome masses of fat, with the stench arising from the hold, and from the casks when first opened to receive the blubber, were more than the stomach of a landsman on board could relish; for notwithstanding the utmost exertions used in *making off*, the crew could not get the one fish stowed and packed, before another was ready for flensing. Every spare space between decks was therefore filled with blubber and whalebone, and a great part of the crew remained for many hours together on the ice, to the lee of which the ship was moored, for the sake of the greater room it afforded for their operations.

There were only two serious drawbacks to the good fortune which the Endeavour met with on this voyage. The first was a dispute with another whaler as to the *possession* of a Whale which was captured by the stranger, and which proved to be that which got away under the ice from the Endeavour's boat. It happened that this same fish was again chased and struck by the vessel's crew, while the strangers' boats were also in pursuit; and the latter, conceiving that this assistance was only such as is frequently rendered by one party to another in such circumstances, laid claim to the prize; a claim disputed by the captain of the Endeavour, on discovering and recognising his own harpoon in the animal, and on the plea of his crew having first been "fast." The claim of the stranger was, however, admitted, on reference to other captains, because the harpoon remaining in the fish alone gave no title to it, as there was no connexion in any way between the Whale and any person or boat belonging to the vessel, the fish being *loose*, in all the usual constructions of that term among whalers; and since the boats of the stranger were avowedly in pursuit when those of the Endeavour came up, the latter were not allowed the right of interfering, except to render aid in such circumstances.

The second and far more fatal event which occurred, was the loss of three men during a long-protracted endeavour to work the vessel out of an extensive pack of heavy ice in which she got entangled; it had been found necessary to cut a passage through a large floe by means of ice-saws. To warp the ship through this cut, an anchor was carried out on the ice; the three men alluded to, had been particularly active and venturesome on this occasion, and had, at imminent hazard, got across some drift-ice to haul on a hawser, when some sudden and unexpected current set the whole in motion,—a large piece was driven against that on which the men were standing; the concussion heaped it up in fearful confusion, and two of the men were crushed by a mass weighing many tons being literally forced over them. The third was driven into the water; and as the event had broken up the hold of the grapple, the ship began to drive, and the most strenuous efforts of all her crew were necessary to save her by getting out another anchor and securing her in a bight of the ice, which could alone afford her shelter during the commotion around her; it was two hours, therefore, before the poor fellow could be brought off from the piece of ice he had managed to regain. The consequence was, that when he was brought on board he was quite inanimate; his clothes and hair were frozen to a mass, and had to be cut away from his body; and though, in consequence of the unremitted exertions, which for four or five hours were used, to restore him, he recovered his senses, the effect on his constitution was fatal, and he died two days afterwards.

The vessel had, after this, to contend with stormy weather, and all the perils of navigation among ice, in such circumstances, for nearly ten days; she, however, happily escaped all serious injury, and managed to get clear of the ice. The end of the season approaching, and the captain being content with his prize,—having taken in all five fish, made all sail homewards, where the vessel arrived safe after a short passage of three weeks.

THAT gentleness which is characteristic of a good man, has, like every other virtue, its seat in the heart. In that unaffected civility which springs from a gentle mind, there is a charm infinitely more powerful than in all the studied manners of the most finished courtier.—BLAIR.

## THE NATURAL HISTORY OF THE BEE.

### II.

#### THE FEMALE, OR QUEEN BEE.

THE *queen-mother* here demands our first attention, as the personage upon whom, when established in her regal dignity, the welfare and happiness of the apiarian community altogether depend. The first moments of her life, prior to her election to lead a swarm or fill a vacant throne, are moments of the greatest uneasiness and vexation, if not of extreme peril, and vindictive and mortal warfare. The Homeric maxim, that "the government of many is not good," is fully adopted and rigorously adhered to in these societies. The jealous Semiramis of the hive will bear no rival near her throne. There are usually not less than sixteen, and sometimes not less than twenty, royal cells in the same nest; you may therefore conceive what a sacrifice is made when one only is suffered to live and to reign. But here a distinction obtains which should not be overlooked: in some instances a single queen only is wanted to govern her native hive; in others several are necessary to lead the swarms. In the first case inevitable death is the lot of all but one; in the other, as many as are wanted are preserved from destruction by the precautions taken on that occasion, under the direction of an all-wise Providence, by the workers:—there is that instinctive jealousy in a queen bee, that no sooner does she discover the existence of another in the hive, than she is put into a state of the most extreme agitation, and is not easy until she has attacked and destroyed her.

The queen which is first liberated from her confinement, and has assumed the perfect or imago state (it is to be supposed that the writer is here speaking of a hive which has lost the old queen), soon after this event goes to visit the royal cells that are still inhabited. She darts with fury upon the first with which she meets; by means of her jaws she gnaws a hole large enough to introduce the end of her abdomen, and with her sting, before the enclosed female is in a condition to defend herself or resist her attack, she gives her a mortal wound. The workers, who remain passive spectators of this assassination, after she quits the victim of her jealousy, enlarge the breach that she has made, and drag forth the carcass of a queen just emerged from the thin membrane that envelops the pupa. If the object of her attack be still in the pupa state, she is stimulated by a less violent degree of rage, and contents herself with making a breach in the cell: when this happens, the death of the enclosed insect is equally certain, for the workers enlarge the breach, pull it out, and it perishes. If it happens, as it sometimes does, that two queens are disclosed at the same time, the care of the Almighty to prevent the hive from being wholly despoiled of a governor is singularly manifested by a remarkable trait in their instinct, which, when mutual destruction seems inevitable, makes them separate from each other as if panic-struck. "Two young queens," says Huber, "left their cells one day, almost at the same moment;—as soon as they came within sight, they darted upon each other, as if inflamed by the most ungovernable anger, and placed themselves in such an attitude, that the antennæ of each were held by the jaws of its antagonist; head was opposed to head, trunk to trunk, abdomen to abdomen; and they had only to bend the extremity of the latter, and they would have fallen reciprocal victims to each other's sting." But that these duels should not be fatal to both combatants, as soon as they were thus circum-



stanced a panic fear seemed to strike them, and they disengaged themselves, and each fled away. After a few minutes were expired, the attack was renewed in a similar manner, with the same issue; till at last, one suddenly seizing the other by her wing, mounted upon her, and inflicted a mortal wound.

When a second fertile queen had been introduced into a hive, a singular scene ensued, which proves how well aware the workers are that they cannot prosper with two sovereigns. Soon after she was introduced, a circle of bees was formed round the stranger, not to compliment her on her arrival, or pay her the usual homage, but to confine her, and prevent her escape; for they insensibly agglomerated themselves in such numbers round her, and hemmed her in so closely, that in about a minute she was completely a prisoner. While this was transacting, what was equally remarkable, other workers assembled in clusters round the legitimate queen, and impeded all her motions; so that soon she was not more at liberty than the intruder. It seemed as if the bees foresaw the combat that was to ensue between the two rivals, and were impatient for the event; for they only confined them when they appeared to avoid each other. The legitimate queen appearing inclined to move towards that part of the comb on which her rival was stationed, the bees immediately began to retire from the space that intervened between them, so that there was soon a clear arena for combat. When they could discern each other, the rightful queen, rushing furiously upon the pretender, seized her with her jaws near the root of the wings, and, after fixing her, without power of motion, against the comb, with one stroke of her sting despatched her. If ever-so-many queens are introduced into a hive, all but one will perish, and that one will have won the throne by her own unassisted valour and strength. Sometimes a strange queen attempts of herself to enter a hive: in this case the workers, who are upon the watch and who examine everything that presents itself, immediately seize her with their jaws by the legs or wings, and hem her in so straitly with a clustered circle of guards, turning their heads on all sides towards her, that it is impossible for her to penetrate within. If they detain her prisoner too long, she dies either from the want of food or air, but never from their stings.

I must now beg you to attend to what takes place when queens are wanted to lead forth swarms. Here you will, with reason, suppose that nature has instilled some instinct into the bees, by which these necessary individuals are rescued from the fury of the reigning sovereign.

Did the old queen of the hive remain in it till the young ones were ready to come forth, her instinctive jealousy would lead her to attack them all as successively produced; and being so much older and stronger, the probability is that she would destroy them; in which case there could be no swarms, and the race would perish. But this is wisely prevented by a circumstance which invariably takes place—that the first swarm is conducted by this queen, and not by a newly disclosed one, as Réaumur and others have supposed. Previously to her departure, after her great laying of male eggs in the month of May, she oviposits in the royal cells when about three or four lines in length, which the workers have in the mean time constructed. These, however, are not all furnished in one day,—a most essential provision, in consequence of which the queens come forth successively, in order to lead successive swarms. There is something singular in the manner in which the workers treat the young queens that are to lead the

swarms. After the cells are covered in, one of their first employments is to remove here and there a portion of the wax from their surface, so as to render it unequal; and immediately before the last metamorphosis takes place, the walls are so thin that all the motions of the enclosed pupa are perceptible through them. On the seventh day the part covering the head and trunk of the young female, if I may so speak, is almost entirely unwaxed. This operation of the bees facilitates her exit, and probably renders the evaporation of the superabundant fluids of the body of the pupa more easy.

You will conclude, perhaps, when all things are thus prepared for the coming forth of the enclosed female, that she will quit her cell at the regular period, which is seven days;—but you would be mistaken. Were she indeed permitted to pursue her own inclinations, this would be the case; but here the bees show how much they are guided in their instinct by circumstances, and the wants of their society; for did the new queen leave her cell, she would immediately attack and destroy those in the other cells; a proceeding which they permit, as I have before stated, when they only want a successor to a defunct or a lost sovereign. As soon, therefore, as the workers perceive—which the transparency of the cell permits them to do—that the young queen has cut circularly through her cocoon, they immediately solder the cleft up with some particles of wax, and so keep her a prisoner against her will. Upon this, as if to complain of such treatment, she emits a distinct sound, which excites no pity in the breasts of her subjects, who detain her a prisoner two days longer than nature has assigned for her confinement. In the interim, she sometimes thrusts her tongue through the cleft she has made, drawing it in and out till she is noticed by the workers, to make them understand that she is in want of food. Upon perceiving this, they give her honey, till, her hunger being satisfied, she draws her tongue back,—upon which they stop the orifice with wax.

You may think it perhaps extraordinary that the workers should thus endeavour to retard the appearance of their young females beyond its natural limit; but when I explain to you the reason for this seeming incongruity of instinct, you will adore the wisdom that implanted it. Were a queen permitted to leave her cell as soon as the natural term for it arrived, it would require some time to fit her for flight, and to lead forth a swarm; during which interval a troublesome task would be imposed upon the workers, who must constantly detain her a prisoner to prevent her from destroying her rivals, which would require the labours and attention of a much larger number than are necessary to keep her confined to her cell. On this account they never suffer her to come forth till she is perfectly fit to take her flight. When at length she is permitted to do this, if she approaches the other royal cells, the workers on guard seem greatly irritated against her, and pull, and bite, and chase her away; and she enjoys tranquillity only while she keeps at a distance from them. As her instinct is constantly urging her to attack them, this proceeding is frequently repeated. Sometimes standing in a particular and commanding attitude, she utters that authoritative sound which so much affects the bees; they then all hang down their heads and remain motionless; but as soon as it ceases they resume their opposition. At last she becomes violently agitated, and, communicating her agitation to others, the confusion more and more increases, till a swarm leaves the hive, which she either precedes or follows. In the same manner the other young queens are

treated, while there are swarms to go forth ; but when the hive is sufficiently thinned, and it becomes troublesome to guard them in the manner here described, they come forth unnoticed, and fight unimpeded, till one alone remains to fill the deserted throne of the parent hive. You see here the reason why the eggs that produce these queens are not laid at the same time, but after some interval, that they may come forth successively. For did they all make their appearance together, it would be a much more laborious and difficult task to keep them from destroying each other. When the bees have delayed the entrance of the young queens into their world, they invariably let out the oldest first.

You must not think, however, from what I have been saying, that the old queen never destroys the young ones previously to her leading forth the earliest swarm. She is allowed the most uncontrolled liberty of action ; and if she chooses to approach and destroy the royal cells, her subjects do not oppose her. It sometimes happens, when unfavourable weather retards the first swarm, that all the royal progeny perish by the sting of their mother, and then no swarm takes place. It is to be observed, that she never attacks a royal cell till its inhabitant is ready to assume the pupa state, therefore much will depend upon their age. When they arrive at this state, her horror of these cells, and aversion to them, are extreme : she attacks, perhaps, and destroys several ; but finding it too laborious, for they are often numerous, to destroy the whole, the same agitation is caused in her as if she were forcibly prevented, and she becomes disposed to depart, rather than remain in the midst of her rivals, though her own offspring.

But though the bees, in one of these cases, appear such unconcerned spectators of the destruction of royal personages, or rather the applauders and inciters of the bloody fact ; and in the other show little respect to them ; put such a restraint upon their persons, and manifest such disregard to their wishes ; yet, when they are once acknowledged as governors of the hive, and leaders of the colony, their instinct assumes a new and wonderful direction. From this moment they become the objects of constant and

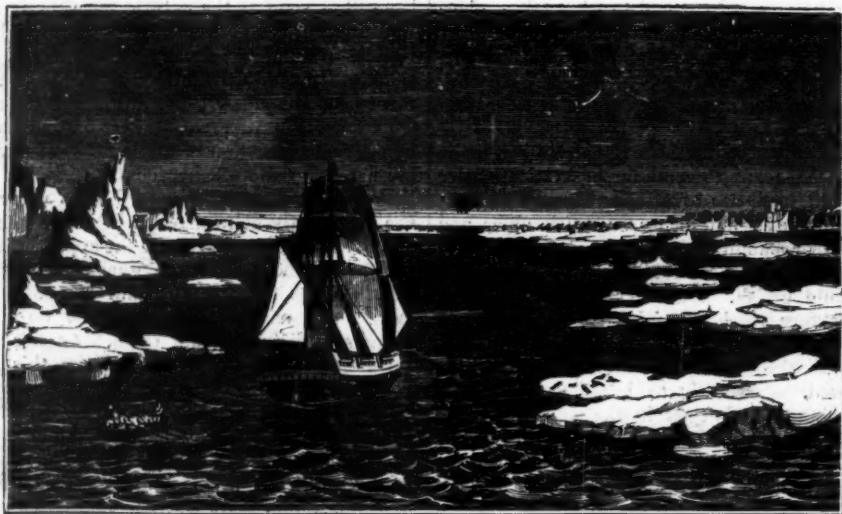
universal attention ; and, wherever they go, are greeted by a homage which evinces the entire devotion of their subjects.

She appears to be the very soul of all their actions, and the centre of their instincts. When they are deprived of her, or of the means of replacing her, they lose all their activity, and pursue no longer their daily labours. In vain the flowers tempt them with their nectar and ambrosial dust : they collect neither ; they elaborate no wax, and build no cells ; they scarcely seem to exist ; and, indeed, would soon perish, were not the means of restoring their monarch put within their reach. But, if a small piece of comb containing the brood-grubs of workers be given to them, all seem endued with new life : their instincts revive ; they immediately set about building royal cells ; they feed with their appropriate food the grubs they have selected, and everything proceeds in the usual routine.

Réaumur relates an interesting anecdote, which strongly marks the attachment of bees to their queen when apparently lifeless. He took one out of the water quite motionless, and seemingly dead, which had lost part of one of its legs. Bringing it home, he placed it amongst some workers that he had found in the same situation, most of which he had revived by means of warmth ; some however still being in as bad a state as the poor queen. No sooner did these revived workers perceive the latter in this wretched condition, than they appeared to compassionate her case, and did not cease to lick her with their tongues till she showed signs of returning animation ; which the bees no sooner perceived, than they set up a general hum, as if for joy at the happy event. All this time they paid no attention to the workers who were in the same miserable state.

The laying of worker-eggs begins in February, sometimes so early as January. After this, in the Spring, the great laying of male eggs commences, lasting thirty days ; in which time about 2000 of these eggs are laid. Another laying of them, but less considerable, takes place in Autumn.

[Abridged from BAGSTER *On the Management of Bees.*]



THE WHALE FISHERY, WITH A REMARKABLE EFFECT OF REFRACTION.